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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/670,412	09/24/2003	Jimmie D. Weaver	2002-IP-007995U1	7925

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EXAMINER

RICHARD, CHARLES R

ART UNIT

PAPER NUMBER

1712

DATE MAILED: 08/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/670,412

Applicant(s)

WEAVER ET AL.

Examiner

C. R. Richard

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-48 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-48 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 9/24/03.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-3, 6-11, 13, 17-19, 22-27, 29, 33-35, 38-43 and 45 are rejected under 35 U.S.C. 102(b) as being anticipated by Harris (US 5,566,760). Harris discloses a fracturing fluid and method of using same.

Harris teaches an aqueous fluid comprising a hydrophobically modified guar or hydrophobically modified hydroxymethylcellulose, a surfactant like alpha olefin sulfonate and a gas (see Abstract). As seen in Example 1, a buffer [which would be a salt in part] may be added before the gas, and the gas may be added after all the other components are mixed.

The hydrophobically modified guar (HMG) is described as guar (or perhaps more precisely alkyl ethers of guar such as methyl, hydroxyethyl or hydroxypropyl) with two types of monomers grafted on to it; these monomers are the same as in rejected claim 3

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(and others), and the molecular substitution is the same also (see column 7, line 58 to column 8, line 52). The HMG may preferably be used in the ranges of 20 to 60 and 30 to 45 pounds per 1000 gallons of aqueous phase (see column 9, lines 29-34). Hydrophobically modified hydroxyethyl and hydroxymethyl celluloses (for example, Natrosol Plus 430) can also be used, even if not as effective (see column 11, lines 1-19); it is at least implied in the reference that these celluloses are water soluble, so the degree of substitution must be low.

Various surfactants may be used with alpha olefin sulfonate being preferred, but other anionic and even cationic surfactants may be used; betaines, sulfated alkoxylates, alkyl sulfonates and alkyl aryl sulfonates are other specific examples (see column 9, lines 35-45). Some ranges given for the surfactant are about 0.3 to 10 and about 2 to 7.5 gallons surfactant /1000 gallons of aqueous phase (see column 9, lines 45-51).

Note that Applicant has not specifically defined what is meant by "low concentration" for the surfactant. The specification at page 8, paragraph 29 does not appear to definitely limit this to the range given there (words like "generally" and "in a low concentration" are used). In addition, the independent claims (like claim 1) call out "low concentration", while the only (additional) limitation recited in some claims dependent on these (like claim 13) is this range on page 8 of the specification – a dependent claim should have a scope narrower in some way than the corresponding independent claim. In any case, the lower end of the ranges recited in the reference (about 0.3 gallons/1000 gallons) should include at least the upper end of the range recited in the specification (about 0.025 weight percent) when all the unit conversions

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are made. It is also of note that the example on page 11 of the specification shows 0.05 weight percent surfactant as much more desirable than lower amounts.

Fracturing steps, including the pumping, and addition of gas and proppant are given in columns 11-13. Fracturing is a form of well treatment of course. Increased radiuses of gyration are inherent given that the compositions in the reference are the same as those being claimed in the present application.

3. Claims 1-2, 5, 10, 12, 14-16, 33-34, 37, 42, 44, 46-48 are rejected under 35 U.S.C. 102(b) as being anticipated by disclosures in WO99/50530. This WO reference corresponds to US 6,920,928 to Davies et al.; this rejection is based on the WO reference, since it is a 102(b) reference, whereas the US equivalent is only a 102(e) reference. The WO reference teaches methods and compositions for water control.

The WO reference teaches various specific aqueous solutions containing a low concentration of an erucyl cationic surfactant, hydrophobically modified polyacrylamide (7g/liter, low substitution), and sodium chloride; crosslinking was by acetaldehyde (1g/liter) (see pages 19-23). An alternate surfactant could be cetylpyridinium chloride and crosslinking could alternately be by zirconium (IV) (see page 11, lines 1-10 and page 16, lines 31-32). The solutions of the WO may be pumped downhole to reduce water production (see Abstract); this is a form of well treating. The radiuses of gyration would inherently have increased as these compositions are the same as those of the rejected claims.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 1-2, 4-9, 11, 14-15, 17-18, 20-25, 27, 30-32, 33-34, 36-41, 43 and 46-47 are rejected under 35 U.S.C. 103(a) over Miller et al. in US 6,605,570. Miller discloses compositions and methods to control fluid loss.

Miller teaches a well bore fluid (drilling, fracturing, etc.) comprising a carrier, a surfactant and a polymer with crosslinker (see column 5, lines 35-55). The carrier may be water or brine (see column 5, lines 55-60). The surfactant may be present at low concentrations like 0.3 weight percent (see column 6, lines 1-5) and may be any of a variety of cationic surfactants and anionic surfactants (oleic acid is the only anionic

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specifically named) (see column 6 and 7). A variety of polymers may be used, and these may be hydrophobically modified provided they remain water soluble (low substitution) and crosslinkable (most of the examples given are thus included in the claims of the present invention with xanthan gum a particular and emphasized example) (see column 8, lines 28-60). Crosslinkers include a variety of inorganics, most of which show up in the claims of the present invention, including boron, aluminum, zirconium and titanium (see column 9, lines 10-20). The step of pumping downhole in fracturing (a well treatment) is given at column 11, lines 30-35.

Miller teaches all of the limitations of the rejected claims in proper context, except as follows. The Miller reference does not specifically teach that the hydrophobic modification is via a monomer, but this would have been obvious to one of ordinary skill in the art. Miller does not teach the specific amounts of crosslinking agent of claim 32, but one of ordinary skill in the art would have utilized amounts within the scope of this claim at least in the routine process of optimizing the amount of crosslinker to be used. An increased radius of gyration exists in these fluids as they are the same as those of the rejected claims.

6. Claims 17 and 28 are rejected under 35 U.S.C. 103(a) over Miller et al. in US 6,605,570 in view of disclosures in WO 99/50530. Both references have been discussed above.

Miller teaches all of the limitations of the rejected claims in proper context, except as follows. In claim 28, Miller does not teach the specific cationic surfactants called out,

but does teach that cationic surfactants can be used. The WO reference cited teaches (see above) use of the cationic surfactant cetylpyridinium chloride in a context disclosed by Miller – use in association with a hydrophobically modified polyacrylamide that may be cross linked with zirconium (IV); in addition, the WO reference composition is for water control, and the Miller compositions are similarly described as being useful in fluid loss control, and they may be used as well in fracturing. It would thus have been obvious for one of ordinary skill in the art to have used cetylpyridinium chloride as cationic surfactant in a fracturing composition according to Miller. Of course, an increased radius of gyration exists in these fluids as they are the same as those of the rejected claims.

### ***Conclusion***

7. The prior art made of record and not relied upon is considered pertinent to Applicant's disclosure. The following US Patents and US Patent Application Publications disclose compositions and/or methods at least similar to those of the present invention: 5,179,083; 5,990,052; 6,194,356; 6,803,348; 6,908,888; 2002/0004464; 2004/0209780; 2004/0229756; 2004/0259739; and 2005/0000694.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to C. R. Richard whose telephone number is 571-272-8502. The examiner can normally be reached on M-Th, 8am-6pm and alternate Fridays, 8am-5pm.




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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on 571-272-1302. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*C. Richard*

  
**PHILIP TUCKER**  
**PRIMARY EXAMINER**  
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